SOUTH DAKOTA DEPARTMENT OF EDUCATION

NAEP SOUTH DAKOTA
NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

NAEP 2013 Mathematics Grade 8

South Dakota scores down from 2011

Math Grade 8 Highlights:

- In 2013, South Dakota's average scale score (287) was ***lower*** than in 2011 (291) on the NAEP 8th grade mathematics assessment.
- South Dakota's 2013 average scale score (287) remained ***higher*** than the national average (284).
- South Dakota's average scale score (287) was ***higher*** than 24 states, ***lower*** than 7 states and ***not significantly different*** from 18 states.
- 38% of South Dakota's students scored ***At*** or ***Above Proficient*** in 2013, which is lower than in 2011 (42%).
- Only 10% of Native American students scored ***At*** or ***Above Proficient*** in 2013 and 52% scored ***Below Basic***.
- The achievement gap between white and Native American students in South Dakota (33 pts) was ***larger*** than the national average (23 pts).

What is NAEP?

The National Assessment of Educational Progress is administered in South Dakota public schools every other year and measures what students know and can do in math and reading. From January to March 2013, approximately 3,000 South Dakota 8th graders in two-thirds of middle schools participated in NAEP in math. Student performance is reported as an average scale score based on the NAEP math scale, which ranges from 0 to 500.

How did we do in 2013?

South Dakota's 8th grade math scores were lower in 2013 than in 2011. Overall, South Dakota scores are up two points over the last ten years. In that same time, the national average has risen eight points (**Figure 1**).

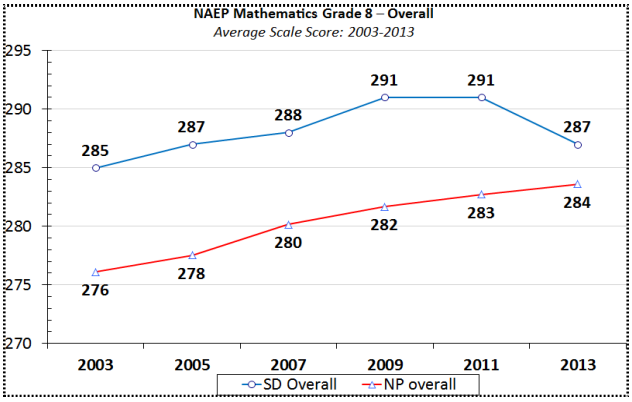

Figure 1:
Average scale scores across time for South Dakota and the national public

South Dakota has typically performed well on the NAEP math assessment compared to other states. However, in 2013, more states surpassed South Dakota than in previous years. South Dakota scored higher than 24 states, while in 2011 we scored higher than 34 states and in 2003 lower than only one.

White students' average scale score of 294 was significantly higher than Hispanic students (274), black students (254) and Native American students (260). None of the racial/ethnic groups in the state increased achievement from 2011 to 2013.

NAEP math scores for South Dakota students identified as having a disability were the lowest ever. There was a 13-point drop in achievement from 2011 to 2013. Also, 2013's 50-point gap is 11 points larger than the gap in 2011 (39 points).

Students who were eligible for the National School Lunch Program, an indicator of family income, had an average score 26 points lower than students who were not eligible. Twenty-two percent of NSLP eligible students scored At or Above Proficient.

For more information, visit:

http://doe.sd.gov/oats/NAEP.aspx

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What is on the test?

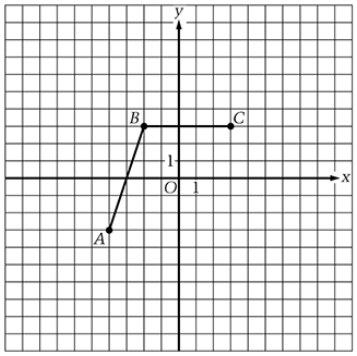
Five content areas:

- Number properties and operations
- Measurement
- Geometry
- Data analysis, statistics and probability
- Algebra

On the 8th grade math assessment, questions are divided as follows: 30 percent algebra, 20 percent each in geometry and number properties, and 15 percent each in measurement and data analysis. Testing time is split evenly between multiple choice and constructed response (both short and extended).

Can I see a multiple choice question?

The following two questions are from the geometry content area. The first question uses the graph, but the second does not:



Which of the following coordinates of a point *D* would form a trapezoid *ABCD* in the figure above?

A. (-3, 1) B. (-3, 5) C. (0, -2)
D. (5, -6) E. (8, -3)

Thirty-two percent of South Dakota students answered this question correctly (E). Twenty-four percent answered B and 20 percent answered D.

Points *A* and *B* are on a number line. The coordinate of point *B* is 3 and the coordinate of the midpoint of segment *AB* is –5. What is the coordinate of point *A*?

A. –13 B. –2 C. –1
D. 8 E. 11

Fifty-three percent of South Dakota students answered this question correctly (A).

Can I see a short answer question?

Below is an algebra item requiring a short constructed response:

Old Faithful is one of hundreds of geysers in Yellowstone National Park. Predicting when Old Faithful will erupt next can be done by timing the previous eruption.

If an eruption lasts *t* minutes, then the next eruption will occur approximately $12.5t + 22$ minutes after the eruption ends. If the previous eruption lasted 6 minutes and ended at 1:23 P.M., when is the next eruption expected to occur?

Answer:_____

Show how you found your answer.

A sample correct solution is as follows:

$$12.5(6) + 33 = 108 \text{ minutes}$$
$$= 1 \text{ hour and } 48 \text{ minutes}$$

$$\begin{array}{r} 1:23 \\ +\ 1:48 \\ \hline 2:71 \end{array}$$

2:71 is equivalent to 3:11 P.M.

Constructed response items are graded using a rubric that focuses on the content of the answer, not spelling or grammar. Students can receive partial credit for responses.

Correct
Answer of 3:11 P.M. with correct work

Partial
Answer of 3:11 P.M. with no work;
OR correct process is shown but answer is not 3:11 P.M.;
OR answer of 108 minutes

Incorrect
Answer of 1:08; OR other incorrect responses

Twenty percent of South Dakota students' answers to this question were scored Correct. Twenty-six percent of answers were scored Partial and 52 percent were Incorrect.

Where can I get more information?

These sites offer NAEP data analysis:

- NAEP Data Explorer
- Nationsreportcard.gov

Released questions can be viewed and turned into classroom tests with the NAEP Questions Tool.

Contact Alan Haarstad at **Alan.Haarstad@state.sd.us** with questions about NAEP or these online tools.

Released NAEP items, as well as other state and teacher developed assessment resources, can also be found on the South Dakota Assessment Portal.

For more information on the South Dakota Assessment Portal, contact Matt Gill at **Matthew.Gill@state.sd.us**